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DEPT PASS DOD FOR OSD/P:MENTZ, JS/J-5: MILLER  
DEPT PASS NRC FOR COM. JMERRIFIELD, OCM:NFRAGOYANNIS,  
OGC:KIM, OIP:DUNN-LEE  
DEPT PASS DOE FOR SO:SOLICH/KOHEN/RIVERS  
NNSA:JONAS/LEIKEN/CHERRY/BARLOW  
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TAGS: KNNP KTIA ENRG ECON RO IAEA  
SUBJECT: REPORT ON NUCLEAR REGULATORY COMMISISON OFFICIALS'  
VISIT TO BUCHAREST, ROMANIA, SEPTEMBER 25-28, 2004

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¶1. (U) Summary: U.S. Nuclear Regulatory Commission (NRC) Commissioner Jeffrey Merrifield visit to Romania in late September provided the USG insight into the strong Romanian civil nuclear program. End Summary.

First Visit to Romania by NRC Commissioner

¶2. (U) On September 25-28th, 2004, Commissioner Jeffrey Merrifield visited Bucharest, Romania and the Cernavoda nuclear power plant. His Chief of Staff, Margaret Doane, and Jodi Lieberman, Office of International Programs, USNRC accompanied him. While in Bucharest, the Commissioner met with Dr. Lucien Biro, Chairman of the Romanian National Commission for Nuclear Activities Control (CNCAN) and, at the close of his visit, participated in a press conference with Dr. Biro and local media. He also traveled to the Cernavoda nuclear power plant, located roughly 1 hours outside of Bucharest. This was the first visit of an NRC Commissioner or delegation to Romania. The purpose of the visit was to discuss the regulatory and operating experience of the CANDU-6 reactor design in light of NRC's activities in connection with a U.S. utility's interest in the Advanced CANDU Reactor (ACR) 700.

CNCAN President Discussions Reveal Operational Readiness

¶3. (U) Commissioner Merrifield began his visit with a meeting at CNCAN headquarters in Bucharest with Dr. Lucian Biro, CNCAN President. In addition to Dr. Biro, the Commissioner met with Camelia Liutiev, European Integration and International Cooperation Section, Viviana Grama, Director, Special Material Section and Lucian Goicea, Director, Quality Control Division. Timothy Phillips, Economic Officer at the U.S. Embassy in Bucharest, also attended the meeting.

¶4. (U) Dr. Biro explained that the CNCAN President is appointed by the Prime Minister and has the status of State Secretary. He reports to the Prime Minister through the

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Chancellor of the Prime Minister. He added that much of CNCAN's regulatory structure was established using NRC as a model.

¶5. (U) Dr. Biro presented a brief history of civilian nuclear activities in Romania, the development of CNCAN and the current status of work being done to complete Unit 2 at the Cernavoda NPP. Although there was significant political pressure to build Soviet-designed VVER reactors at Cernavoda, the CANDU-6 reactor design was ultimately chosen for the site because of its strong seismic design qualities, use of a containment structure, and better quality assurance features.

¶6. (U) Construction of the five CANDU-6 units began in 1980 at the Cernavoda facility, during the regime of Nicolae Ceausescu. Construction was halted with the demise of the Ceausescu regime, but work resumed in the mid-1990s with a decision by the new government to complete Unit 1 with the assistance of CANDU reactor vendor Atomic Energy of Canada Limited (AECL) and Italian firm Ansaldo S.A., which provided the "balance of plant" equipment.

¶7. (U) Unit 1 was commissioned in 1996, with Unit 2 scheduled for completion in 2006/7. Dr. Biro stated that Nuclearelectrica S.A. (SNN), the utility operating Cernavoda, had already implemented nearly 160 safety improvements at Unit 2, and had secured both a 235 million Euro loan, and a \$400 million loan from the Canadian government for completion of Unit 2. He added that SNN is working to secure outside investment to fund completion of Unit 3, noting that South Korea has expressed interest in

providing funding for the project.

¶ 18. (U) Dr. Biro stated that, although CNCAN has 175 authorized slots for employees, only 130 positions are currently filled. While salaries at CNCAN are reasonably high, SNN is able to offer still higher salaries, making it difficult for Dr. Biro to attract employees. Moreover, he noted that CNCAN staff attrition is a problem, with employees either retiring, or emigrating to Canada, the U.K. and South Africa. CNCAN is a full-fee recovery agency, relying principally on licensee fees for its budget (as does NRC). Dr. Biro explained that, as a political appointee, his salary is capped, preventing the salaries of his employees from rising as well. However, there is some interest in changing his status. Housed in a rather cramped section of a larger government building, CNCAN will soon move to its own, more elaborate building. Dr. Biro stated that he had secured a 10 million euro bank loan to construct a new CNCAN facility in Bucharest, scheduled for completion by 2006/7.

¶ 19. (SBU) With regard to Romanian EU accession in 2007, Dr. Biro noted that CNCAN had implemented many of the EU Aquis chapter requirements and had taken steps to revise CNCAN regulations to be in line with those of the EU in areas such as physical protection, quality assurance and safeguards. As CNCAN also has licensing responsibility for radioactive sources, Dr. Biro explained that all sources above a certain activity level (i.e. "High-risk radioactive sources") are tagged so that their movement can be tracked through a GPS system.

¶ 10. (U) In response to a question posed by Commissioner Merrifield regarding cooperation with other CANDU regulators, Dr. Biro noted that the CANDU Senior Regulators' Group was the main forum for exchange of information. That group meets annually. He advised that Romania also has agreements with neighboring countries, including Greece, Bulgaria, Hungary, Slovakia and Russia for notification in the event of a nuclear accident or incident. CNCAN and Cernavoda conduct emergency exercises and will host CONVEX 3, an international emergency exercise organized by the International Atomic Energy Agency (IAEA), next year. Dr. Biro invited NRC to observe the exercise. Although CNCAN currently has no emergency operations center, one will be included in the new building. Cernavoda also lacks an offsite emergency operations center, although Dr. Biro stated that one will be built in the future. Through one of the three cellular telephones he always carries, Dr. Biro has direct access to the Romanian government civil command - and the Prime Minister, if necessary - in the event of a nuclear incident or accident. In closing, Dr. Biro expressed interest in touring the NRC Headquarters Operations Center at some point. He visited the backup emergency operations center in NRC Region IV in 2001.

#### Site Visit to Cernavoda

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¶ 11. (U) Commissioner Merrifield and the delegation proceeded to the Cernavoda site later the same day, where they were met by representatives from SNN, the Canadian/Italian consortium "CNE-Invest", and the Romanian management/construction partner "CNE-PROD". The Commissioner explained that a U.S. utility, Dominion Power, has expressed an interest in the possibility of building an advanced CANDU reactor, an ACR-700, at one of its stations. The NRC is performing a pre-application review for ACR-700 design.

¶ 12. (U) Vic Stobie, the Canadian safety and licensing manager for CNE-Invest, presented background information on the construction project to complete Unit 2. Of the 1664 slots allocated for the project, 1457 are allocated for Romanian companies. At present, the project staff consists of 109 AECL, 68 Ansaldo and 1288 Romanian workers. 199 positions remain to be filled. Mr. Stobie discussed the process AECL, SNN, and Ansaldo went through to review the existing materials and equipment in Unit 2, abandoned in the 1980s, followed by an assessment and refurbishment program started in 2002. He noted that preservation of the existing unit hardware was very good and that the majority of items to be replaced before work started on Unit 2 were so-called "perishable" items, e.g. those that were composed of elastomers. The Commissioner asked the extent to which the construction/management team was able to apply efficiencies in Unit 2 based on lessons learned in the completion of Unit 1. Mr. Stobie indicated that much of the construction staff that had worked on Unit 1 is now working at Unit 2. Staff is also coming from the CANDU plant in Qinshan, China. Procedures had also been updated based on Unit 1 experience.

¶ 13. (U) During the presentation, Dan Bigou, the Unit 1 station manager, briefly described the inspection and licensing process for Cernavoda. There are currently two CNCAN inspectors at Unit 1 and two at Unit 2. All CNCAN inspectors have unescorted access to the plant and its

facilities. Unit 1 has a two-year operating license; SNN must apply for a license renewal every two years. The process will remain the same for Unit 2. Regarding licensing of Unit 2, SNN will need to seek authorization from CNCAN for a number of stages in the commissioning efforts, including authorization to receive and store heavy water and nuclear fuel, and authorization to load heavy water and for manual fuel loading. The utility will also need to seek CNCAN approval for achieving criticality and subsequent increases of power at 25% increments until 100% power is reached. CNCAN is extremely involved in licensing activities at Cernavoda involving Unit 1 and completion of unit 2. During the visit, Dr. Biro spent a lengthy amount of time reviewing SNN submissions to CNCAN for permission to restart Unit 1, then in a maintenance outage.

#### Commissioner's Visit to Unit 2

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¶14. (U) Following discussions with SNN, AECL, and Ansaldo, the Commissioner toured the partially completed Unit 2. The tour included visits to the spent fuel pond, the partially completed calandria and supporting structures, and the refueling machine. Because the stainless steel calandria, which holds the fuel and moderator, was not yet sealed, the team was provided a rare inside view of the calandria vessel through one of the nozzle holes. This is typically not possible because this hatch is an access hatch that is welded shut at a later period during construction

¶15. (U) The plant tour concluded with a visit to the Intermediate Nuclear Spent Fuel Storage facility (DICA), which is based on the AECL-designed "MACSTOR" system. When completed, DICA will permit storage of 300,000 spent fuel bundles from operation of Units 1 and 2 over the next fifty years. The average transfer rate is 5000 bundles per year. There will eventually be 27 storage modules, each of them having a capacity of 12,000 spent fuel bundles. Only one module has thus far been completed.

#### Unit 1 Tour

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¶16. (U) On the second day of discussions at Cernavoda, the Commissioner met with Vasil Simonov, Health and Safety Manager (CNE-PROD), Marian Serban, Director for Technical Issues and Nuclear Safety (CNE-PROD) and Unit 1 manager Bigou. Following a brief overview of Unit 1 operating information and technical characteristics, the delegation toured Unit 1, which was just coming out of a maintenance outage. During pre-tour discussions, the Commissioner inquired whether the plant management maintains a corrective action program. Plant Manager Bigou noted that the corrective action program at Cernavoda is a performance-based system that includes use of root cause analysis for events. On average, Mr. Bigou stated that they identify and review roughly seven hundred events per year and hold weekly meetings to review the events and follow-on corrective action. The plant management also maintains an event database.

¶17. (U) The Commissioner asked whether the plant uses level 1 PSA to manage the backlog of corrective actions. Mr. Serban responded by noting that the plant management has been trying to move to a more risk-based system in order to prioritize corrective actions in response to events and has been discussing this with CNCAN. He indicated that the IAEA had conducted an International Probabilistic Safety Assessment Review Team (IPSART) mission that validated CNCAN's PSA model and expects to complete an external PSA by December 2004.

¶18. (U) The Commissioner asked if the plant management is confident that the staff can effectively identify problems for the corrective action program, to which Mr. Serban replied that, while the process is working well, there is always room for improvement. In 2002, when the plant moved to an event analysis process, there was a significant increase in the number of events identified. However, he did note that investigation reports remain an area for improvement.

¶19. (U) Mr. Bigou added that Cernavoda uses several other CANDUs to benchmark performance, including sister units Gentilly and Point Lepreau in Canada, but would also like to develop a relationship with a U.S. plant. He continued that, as Canada moves to more U.S. style practices, Cernavoda can benefit indirectly because of its association with the Canadian plants. Commissioner Merrifield suggested that the U.S. experience with restart of Browns Ferry Unit 1 in Alabama might be helpful in completion of Unit 2 and potential completion of the other Cernavoda units.

#### Press Conference at CNCAN Headquarters

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¶20. (U) Following the delegation's return to Bucharest, Dr. Biro arranged for a press conference with Commissioner

Merrifield and local media at CNCAN headquarters. Politically adept, Dr. Biro was able to convene a significant number of radio, television and print press outlets. The press conference was extensively covered in local media. During the press conference, Dr. Biro presented the Commissioner with a statuette commemorating thirty years of U.S.-Romanian peaceful nuclear cooperation. Media questions were fairly benign, although one reporter requested the Commissioner's opinion of the recent Slovak Government decision to complete Units 3 and 4 at the Mochovce nuclear power plant, alluding that these reactors were to be of the same design as those at the now closed Chornobyl site in Ukraine. [Note: The reporter was incorrect. Units 3 and 4, begun during the Soviet era, are likely to be similar to Units 1 and 2 at Mochovce, which are not "Chornobyl-style" RBMK reactors but are instead VVER-440/213 style units. End note.]

Comment

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¶21. (SBU) Commissioner Merrifield's visit proved to be very informative, adding to NRC's knowledge of the unique Romanian civilian nuclear power programs. CNCAN President Biro is a resourceful leader dedicated to ensuring a strong nuclear safety culture. Although Dr. Biro's hands-on approach is admirable and his work thorough, CNCAN lacks "defense-in-depth." Dr. Biro does not have a deputy, and it evident that he does not delegate very much of the key decision making to CNCAN management. Should Dr. Biro be unable to perform his duties as President of CNCAN, it is questionable who on his staff would be prepared to step up and keep the work moving. End Comment.

¶22. (SBU) Note: This cable is based mainly on NRC notes. Embassy personnel did not attend all meetings in Romania. End note.

Crouch